



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference LP-21 304 WO	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/DE2004/000744	International filing date (<i>day/month/year</i>) 02.04.2004	Priority date (<i>day/month/year</i>) 05.05.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant DOMO CAPROLEUNA GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.	
3. This report is also accompanied by ANNEXES, comprising:	
a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>5</u> sheets, as follows:	
<input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	
<input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.	
b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))	
_____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4. This report contains indications relating to the following items:	
<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/000744

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-24, 26-32 as originally filed/furnished
- pages* 25 received by this Authority on 21.12.2004 with the letter of 17.12.2004
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-11 received by this Authority on 25.03.2005 with the letter of 23.03.2005
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/5-5/5 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____
4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☒ the claims, nos. 1, 2, 6
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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International application No.

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	8-10	YES
	Claims	1-7, 11	NO
Inventive step (IS)	Claims		YES
	Claims	1-11	NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
This report makes reference to the following documents:			
D1: TJONG S C; MENG Y Z; XU Y: "Preparation and properties of polyamide 6/polypropylene-vermiculite nanocomposite/polyamide 6 alloys" JOURNAL OF APPLIED POLYMER SCIENCE, Vol. 86, 28 November 2002 (2002-11-28), pages 2330-2337, XP002287624			
D2: EP-A-0 387 903 (TOYOTA MOTOR CO LTD; UBE INDUSTRIES (JP) 19 September 1990 (1990-09-19)			
D3: US-A-5 164 440 (OKADA AKANE ET AL) 17 November 1992 (1992-11-17)			
D4: HUA WANG ET AL: "Processing and properties of polymeric nano-composites" POLYMER ENGINEERING AND SCIENCE, Vol. 41, No. 11, November 2001 (2001-11), pages 2036-2046, XP009033458			
D5: LIU X ET AL: "Polyamide 6-clay nanocomposites/polypropylene-grafted-maleic anhydride alloys" POLYMER,			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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ELSEVIER SCIENCE PUBLISHERS B.V, GB,
Vol. 42, No. 19, September 2001 (2001-
09), pages 8235-8239, XP004246006 ISSN:
0032-3861

D6: CHOW W S ET AL: "Compatibilizing effect
of maleated polypropylene on the
mechanical properties and morphology of
injection molded polyamide
6/polypropylene/organoclay
nanocomposites" POLYMER, ELSEVIER
SCIENCE PUBLISHERS B.V, GB, Vol. 44, No.
24, November 2003 (2003-11), pages 7427-
7440, XP004467310 ISSN: 0032-3861

1. The subject matter of claims 1 to 7 and 11 lacks novelty (PCT Article 33(2)) in view of the nanocomposite blends based on polyamide, polypropylene, nanodispersed layer silicates and, optionally, carboxylated polyolefins disclosed in D1 to D5 (see the passages cited in the search report). The nanocomposite blends based on polyamide, polypropylene, nanodispersed layer silicates and carboxylated polyolefins are also prejudicial to the novelty of the embodiments of the invention that contain the d) components, since they are not supported by the disclosure of the priority document DE 103 20 695.7 (2003-05-05) (see PCT Rule 64.1).

2. The subject matter of claims 8 to 10 can be derived in an obvious manner (PCT Article 33(3)) from the method for producing the above-mentioned nanocomposite blends as described in D1 to D6, since

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Box No. V**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

the different mixing procedures for the components are a matter of routine practice for a person skilled in the art. The subject matter of claim 2 lacks clarity (PCT Article 6), since said claim does not describe the method for determining the viscosity (see page 8, lines 21 to 26 of the application).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box I

The amendments submitted with the letter of 23 March 2005 introduce subject matter which, contrary to PCT Article 34(2)(b), go beyond the disclosure of the international application as filed. The amendments in question are the following:

1. The insertion into claims 1 and 6 of the application of the feature "from the group of natural onium ion-modified sodium montmorillonite, hectorite, bentonite or synthetic mica" without the cation exchange capacity that was associated in the original claim 4 with the natural onium ion-modified sodium montmorillonite, hectorite, bentonite or synthetic mica.

2. The replacement in claims 1 and 6 of the application of the feature "carboxylated polyolefins, in particular copolymers of the ethylene with unsaturated carboxylic acids, up to 10 percent by weight" by "polyolefin copolymers, in particular copolymers of the ethylene with unsaturated carboxylic acids, up to 3 percent by weight". The indications on page 11, lines 27-28 of the application should be understood as an interpretation of the feature "carboxylated polyolefins" (see page 11, line 25 of the application). The application does not contain a carboxylated polyolefin content of 3.0 percent by

Supplemental Box

weight, and instead, example 16 of the application merely has a clay content of 3 percent by weight.

3. The insertion in claim 2 of the application of a method for defining the solution viscosity of polyamide 6 in a 1% solution of 96% sulfuric acid at 23°C instead of 25°C (see page 20, lines 27 to 29 of the application).